DEVICE AND METHOD FOR VARIABLE ATTENUATION OF AN OPTICAL CHANNEL

ABSTRACT OF THE DISCLOSURE

[0075] A device for variable attenuation of an optical channel includes an elongated core surrounded by a cladding. Optical energy propagating along the longitudinal axis of the core is normally confined thereto by the difference in refractive indices between the core and cladding. The thermo-optic coefficients of the core and cladding are closely matched such that waveguide confinement is substantially invariant with respect to ambient temperature. The device further includes a thermal source arranged above the core. The thermal source is operable to generate a temperature gradient of controllable magnitude along a vertical axis extending through the core. The temperature gradient causes reduction of the local refractive index within the core relative to surrounding regions of the cladding such that a portion of the optical energy is deflected away from the thermal source and extracted from the core.